

This is a repository copy of *A global perspective on smoking in pregnancy*.

White Rose Research Online URL for this paper:

<https://eprints.whiterose.ac.uk/131566/>

Version: Published Version

Article:

Siddiqi, Kamran orcid.org/0000-0003-1529-7778 and Mdege, Noreen Dadirai orcid.org/0000-0003-3189-3473 (2018) A global perspective on smoking in pregnancy. Lancet Global Health. ISSN 2214-109X

[https://doi.org/10.1016/S2214-109X\(18\)30246-8](https://doi.org/10.1016/S2214-109X(18)30246-8)

Reuse

This article is distributed under the terms of the Creative Commons Attribution (CC BY) licence. This licence allows you to distribute, remix, tweak, and build upon the work, even commercially, as long as you credit the authors for the original work. More information and the full terms of the licence here:

<https://creativecommons.org/licenses/>

Takedown

If you consider content in White Rose Research Online to be in breach of UK law, please notify us by emailing eprints@whiterose.ac.uk including the URL of the record and the reason for the withdrawal request.

A global perspective on smoking during pregnancy



Smoking during pregnancy is associated with pregnancy complications, such as pre-eclampsia, placenta praevia, and placental abruption, and with poor fetal outcomes such as low birthweight, premature birth, stillbirth, sudden infant death syndrome, and high overall perinatal mortality.^{1,2} Yet comprehensive population data on the prevalence of smoking during pregnancy at the country, regional, or global level are limited. The Global Tobacco Surveillance System³ provides data on the prevalence of tobacco use by adults and young people but does not include data on pregnant women.

In *The Lancet Global Health*, Shannon Lange and colleagues⁴ report the results of a systematic review and meta-analysis of the scientific literature from the past 30 years to estimate the prevalence of smoking during pregnancy by country, WHO region, and globally. Where possible, country-specific reports were combined to provide precise estimates of prevalence. For countries with little or no data, multilevel modelling was used to predict prevalence. The global prevalence of smoking during pregnancy was estimated to be 1.7% (95% CI 0.0–4.5), with wide variations between countries and regions. The prevalence was highest in the European Region and in the Region of the Americas. Smoking during pregnancy was a highly prevalent behaviour worldwide, and the investigators call for increased efforts to prevent and stop smoking during pregnancy.

Lange and colleagues made an extensive effort to review the relevant scientific literature. They included predictions of global and regional estimates of the frequency and quantity of cigarette use and projected future prevalence trends. Although their estimates provide a much-needed statement about smoking during pregnancy worldwide, there is also a need for caution when interpreting their estimates. Only 43 countries had two or more prevalence reports, and estimates were projected for the remaining 131 countries. Another limitation was the exclusion of smokeless tobacco use. Concern is growing over the frequent use of smokeless tobacco by women, particularly in Asia and Africa,⁵ and over its use during pregnancy⁶ given its potential to cause poor birth outcomes.⁷ Despite these limitations, the data offer a useful basis to advocate for policies that address smoking in pregnancy and for future studies to gather

nationally representative data in countries where prevalence is unknown.

The prevalence data are consistent with a recent analysis based on Demographic and Health Survey data from 54 countries,⁶ in which the global pooled estimate of tobacco smoking prevalence during pregnancy was 1.3% (95% CI 0.9–1.8). However, although this analysis included a higher number of reporting countries than in the study by Lange and colleagues, it was restricted to low-income and middle-income countries. Nevertheless, the two datasets point to an important asymmetry between low-income and middle-income countries and high-income countries. Although the prevalence of smoking during pregnancy is lower in Africa and Asia than in Europe and the Americas, the proportional ratio of women who smoke during pregnancy and women who smoke in general was relatively higher in Africa and Asia. This could indicate that fewer women quit smoking when becoming pregnant in African and Asia than in Europe and the Americas, suggesting a general lack of awareness of tobacco-related harms during pregnancy and the reluctance of health-care staff in antenatal clinics to ask about tobacco use and advise on smoking cessation.

In recent years, the tobacco industry has been targeting young women through marketing campaigns, particularly in many low-income and middle-income countries. In some countries, smoking has become more common in young girls.⁸ Effective media campaigns, including the use of social media, are needed to counter this trend and raise awareness in young women about the harms of tobacco use during pregnancy. Antenatal services also need to be primed to enquire about tobacco use status and advise on quitting, using a non-judgmental approach. Opt-out cessation services or routine use of carbon monoxide monitors to assess smoking status could increase the uptake of smoking cessation interventions and encourage more pregnant women to quit smoking. The clinical effectiveness, cost-effectiveness, feasibility, and acceptability of these approaches need further investigation.^{9,10} Additionally, a substantial number of pregnant women are exposed to second-hand smoke, especially in countries with high smoking prevalence and poorly established smoke-free norms.¹¹ Efforts to reduce tobacco use during pregnancy should also address this exposure to second-hand smoke. The prevalence

Lancet Glob Health 2018

Published Online

May 30, 2018

[http://dx.doi.org/10.1016/S2214-109X\(18\)30246-8](http://dx.doi.org/10.1016/S2214-109X(18)30246-8)

See Online/Articles

[http://dx.doi.org/10.1016/S2214-109X\(18\)30223-7](http://dx.doi.org/10.1016/S2214-109X(18)30223-7)

of smokeless tobacco use during pregnancy should be explored in future studies. There is a need for surveillance systems that capture tobacco use during pregnancy. National surveys of pregnant women and routine data collected within maternal and child health services should include a minimal set of tobacco use questions to provide regular and accurate data on tobacco use.

In conclusion, Lange and colleagues make an important contribution to the scientific literature and a strong case for action to address smoking during pregnancy. However, there are still glaring gaps in research, policy, and practice on tobacco use and exposure surveillance. Effective ways of identifying smokers, increasing uptake of smoking cessation interventions, and improving quit rates in pregnant women who smoke are urgently needed.

*Kamran Siddiqi, Noreen Mdege

Department of Health Sciences, Hull York Medical School,
University of York, York, UK
kamran.siddiqi@york.ac.uk

We declare no competing interests.

Copyright © 2018 The Author(s). Published by Elsevier Ltd. This is an Open Access article under the CC BY 4.0 license.

- 1 Pineles BL, Park E, Samet JM. Systematic review and meta-analysis of miscarriage and maternal exposure to tobacco smoke during pregnancy. *Am J Epidemiol* 2014; **179**: 807–23.
- 2 Rogers JM. Tobacco and pregnancy. *Reprod Toxicol* 2009; **28**: 152–60.
- 3 Global Tobacco Surveillance System Collaborating Group. Global Tobacco Surveillance System (GTSS): purpose, production, and potential. *J Sch Health* 2005; **75**: 15–24.
- 4 Lange S, Probst C, Rehm J, Popova S. National, regional, and global prevalence of smoking during pregnancy in the general population: a systematic review and meta-analysis. *Lancet Glob Health* 2018; published online May 30. [http://dx.doi.org/10.1016/S2214-109X\(18\)30223-7](http://dx.doi.org/10.1016/S2214-109X(18)30223-7).
- 5 Siddiqi K, Shah S, Abbas SM, et al. Global burden of disease due to smokeless tobacco consumption in adults: analysis of data from 113 countries. *BMC Med* 2015; **13**: 194.
- 6 Caleyachetty R, Tait CA, Kengne AP, Corvalan C, Uauy R, Echouffo-Tcheugui JB. Tobacco use in pregnant women: analysis of data from Demographic and Health Surveys from 54 low-income and middle-income countries. *Lancet Glob Health* 2014; **2**: e513–20.
- 7 Inamdar AS, Croucher RE, Chokhandre MK, Mashyakh MH, Marinho VC. Maternal smokeless tobacco use in pregnancy and adverse health outcomes in newborns: a systematic review. *Nicotine Tob Res* 2015; **17**: 1058–66.
- 8 Warren CW, Lea V, Lee J, Jones NR, Asma S, McKenna M. Change in tobacco use among 13–15 year olds between 1999 and 2008: findings from the Global Youth Tobacco Survey. *Glob Health Promot* 2009; **16** (suppl 2): 38–90.
- 9 Campbell KA, Cooper S, Fahy SJ, et al. 'Opt-out' referrals after identifying pregnant smokers using exhaled air carbon monoxide: impact on engagement with smoking cessation support. *Tob Control* 2017; **26**: 300–06.
- 10 Bell R, Glinianaia SV, Waal ZV, et al. Evaluation of a complex healthcare intervention to increase smoking cessation in pregnant women: interrupted time series analysis with economic evaluation. *Tob Control* 2018; **27**: 90–98.
- 11 Bloch M, Althabe F, Onyamboko M, et al. Tobacco use and secondhand smoke exposure during pregnancy: an investigative survey of women in 9 developing nations. *Am J Public Health* 2008; **98**: 1833–40.